THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, THE GENERAL ELECTRIC COMPANY, AND THE PANIC OF 1907. I

The panic of 1907 is rapidly dropping out of sight as an event clearly remembered, and is becoming more and more to be regarded merely as one of a number of chapters in past economic history. Nevertheless, before the panic shall have quite lost distinctness of recollection, there may be some profit in considering one of the most striking incidents of that period, and in endeavoring to derive certain general principles from such a consideration. The incident in question is the failure of the Westinghouse Electric and Manufacturing Company during the sharpest moments of the crisis, and the utter unconformity between the condition of this concern and that of its strongest rival—the General Electric Company. The conclusions deducible from the study have to do with the policies to be followed in the financial operations of industrial corporations.

As is true in all financial crises, the panic of 1907 subjected to severe strain the great industrial concerns of the country, among them, the two electrical supply corporations here being considered. The Westinghouse company was forced into a receivership, while the General Electric Company underwent the test apparently unshaken. This divergence in the records of the two corporations must have resulted from one of two sets of circumstances: either the General Electric Company enjoyed advantages which its competitor did not; or, while operating on the same basis as its rival, it had been pursuing financial policies different in kind and in outcome. The discussion following will undertake to show that the latter was the case; that is, that the companies met the same conditions in diverging ways, and that these diverging ways of treating fundamentally similar situations gave rise to the incongruity in their subsequent behavior.

In the establishment of this case the discussion must be divided into two portions. The first has to do with a general comparison

of the two corporations at a period some time before that immediately associated with the panic. This parallel study comprehends the fundamental similarities underlying the financial operations of the two, such differences as were the results of differing policies, and the nature and import of these differing policies. The second part of the discussion is taken up with a brief account of the business conditions encountered by the two corporations immediately preceding and during the panic; and with the tracing of the manner in which, under the influence of their divergent fiscal methods, the one stood up under the strain successfully while the other steadily disintegrated into failure. The present article is concerned with the first division of the discussion. The points concerned must, of necessity, be treated at some length, for they can be established only after considerable analysis, and they must be established before the further discussion and conclusions can have any scientific value.

The end of the fiscal year 1903–4 has been selected as the point for making this preliminary comparison. On the one hand, the "Rich Man's Panic" of 1903 had passed its nadir; on the other hand, the three years of extreme industrial expansion collapsing suddenly in the panic of 1907 had not yet commenced.[1] The companies may most conveniently be considered in reference, first, to their industrial and commercial status, and, second, to their financial condition.

Industrially and commercially, the Westinghouse and the General Electric companies were substantially on a par. This point is important, for it has been a common notion that the Westinghouse company could not withstand the quasi-monopolistic advantages possessed by the larger rival, when the pinch of the panic arrived. Such advantages probably existed, but, in so far as they did, they were held in common. In fact, the possession in common of a dominating position in the electrical supply business constitutes one of the chief points of likeness in the position of the two. These similarities may be summarized, in the order in which they

[1] The fiscal year of the General Electric Company commenced January 31, 1904; that of the Westinghouse company, March 31. For the sake of brevity and clearness, the Westinghouse Electric and Manufacturing Company will not be given its full, corporate title, but will be called simply, "the Westinghouse company."

will be considered, as: nature of business, corporate and commercial organization, and competitive advantages enjoyed together.

1. That the two concerns were in the same kind of business, their catalogues, trade bulletins, and advertisements seem clearly to show. If further evidence on this point were needed, it could be adduced from the fact that since 1896 the two companies had operated under a joint patent pool whereby each was permitted to manufacture articles, the patents of which were held by the other. A contemporary authority called one "The Electric Supplies Trust," and the other, "The Electrical Supply Trust."[1]

2. Relative to the corporate organization devised by each concern for the conduct of its business, the similarities were equally clear. This was true, not only of the parent corporations, but also of the subsidiary corporations attached to them. Both the Westinghouse and General Electric companies were themselves large corporations, the results partly of reorganization,[2] and partly of a combination of previously existing concerns. Each had attached to it subcompanies of three general types, namely, those for the extraction of raw materials,[3] those for manufacture and sale of products in this and foreign countries,[4] and those for aiding the parent corporations

[1] Moody in *The Truth about the Trusts*, p. 208.

[2] The history of the General Electric Company has been worked out rather carefully in the *Report of the Commissioner of Corporations on Water Power Development in the United States* (1912). Dewing, *Corporate Promotions and Reorganizations*, contains an account of the Westinghouse company from its origin to the end of the reorganization of 1908.

[3] The evidence of the General Electric holdings is not clear as to the date of acquisition. The first records of the copper mining investments appears in the list of assets of the 1908 report, but the company has made a practice of being very deliberate in the announcement of any stock purchases. For instance, it made no official mention of its holdings in the National Electric Lamp Company until after a federal investigation had disclosed the extent of these holdings. It has been equally reticent concerning its finance subsidiaries. The Westinghouse mica properties are listed at $25,000 in the 1904 report. The accountant's report to the receivers as of October, 1907, appraises "mica mining properties" at $153,089.26. The greater proportion of the present mica output goes into electric material, being largely used for insulating purposes.

[4] Some of the most important domestic subcompanies were: the Siemens-Halske Electric Company of Chicago, the Fort Wayne Electric Works, the Sprague Electric Company, the Stanley Electric Company, the Pennsylvania General Electric Company, in the case of the General Electric Company; and the United States Electric

in the special sort of financing attendant upon the sale of equipment for public utilities enterprises. The finance subsidiaries took over the securities of public utilities concerns which were unable to pay in any other way for the heavier sort of electrical equipment purchased from the two large supply corporations. These finance companies gave cash for the securities and then reimbursed themselves by selling collateral trust bonds, secured by these securities, and made salable by the high credit which the backing of the parent corporations insured.[1]

3. In the competitive position that they occupied in their field of industry, finally, the two presented a third point of likeness. Both concerns enjoyed two sorts of advantages in this respect: the first related to the sources of their financial support; the second, to their market.

First, then, as regards the relation of the Westinghouse and General Electric companies to the investing public, there seems little doubt but that both were amply able to secure such aid as they might require. Their securities were in good repute on the

Lighting Company of Newark, New Jersey, the Consolidated Electric Lighting and the Sawyer-Mann Electric companies of New York, the Bryant Electric Company, with its subsidiary, the Perkins Electric Switch Company, the R. D. Nattal Company of Pittsburgh, and the Walker Electric Company of Cleveland, in the case of the Westinghouse company. Exchange of stock or outright purchase of stock or bonds was the method of acquisition used. The record of these transactions has been drawn from various sources, chief among them the report on water-power development above referred to, the reports of the companies, the financial manuals, and the files of the *Commercial and Financial Chronicle*. The foreign subsidiaries were too complex and too numerous adequately to be discussed in this connection. Some were complete manufacturing and selling units; others appear to have been maintained largely for patent-holding purposes. They covered Canada, Great Britain, and the British Empire, and much of Continental Europe. They are discussed in the annual reports and financial periodicals and annuals already mentioned, particularly the Westinghouse report for 1910–11 and Garcke's *Manual of Electrical Undertakings*.

[1] Meade, *Corporation Finance*, p. 386, discusses this device with reference to the General Electric Company. The Security Investment Company of Pittsburgh seems to have served in a similar capacity for the Westinghouse company. Its insolvency in 1907 appears to have been due, partly at least, to the tying up of much of its funds in the securities of customers of the main company. The Security Investment Company was, however, probably engaged in more far-reaching financing than the corresponding subsidiaries of the General Electric Company, and seems to have been related to the parent company more through joint domination by Mr. Westinghouse than by definite corporate control. This will be brought out later.

exchanges.[1] Large sums of new capital were being obtained with comparative ease.[2] More than this, both organizations seem certainly to have been in touch with financial interests among the most powerful in the country. The General Electric directorate appears to have been composed of two financial groups, the one centering in the New York house of J. P. Morgan & Co. and the other in the Old Colony Trust Company of Boston.[3] The Westinghouse company appears to have been in an equally favorable position. Its New York connections were made through the Equitable Life Assurance Society[4] and Kuhn, Loeb & Co.[5] It also had access to a group of Boston banks and to a larger group of Pittsburgh banks.[6] There is, furthermore, evidence of a community of interests between

[1] General Electric stock ranged between 169¾ and 179¾, and Westinghouse (assenting stock) between 161 and 173⅞ in January, 1904.

[2] The General Electric Company disposed of $3,325,000 worth of new stock in the year 1904–5 and floated over $2,000,000 of debenture bonds in 1902 at only 3½ per cent. During the year 1903–4 the Westinghouse company had issued nearly $4,500,000 of its assenting stock at 90 on a par of 50. Just previous to the time considered, it had put out $2,000,000 worth of two-year, 6 per cent notes, which were followed by a 5 per cent issue of twice that amount selling at 99½–¾. See *Commercial and Financial Chronicle.*

[3] J. Pierpont Morgan, the elder, was on the General Electric's directorate and had been from the firm's inception. The Pujo report (p. 64) states that Mr. Morgan helped promote the concern. C. A. Coffin, president of the General Electric Company, and five other General Electric directors were Boston men. Gordon Abbott, a General Electric director, was president of the Old Colony Trust Company, and T. Jefferson Coolidge, Jr., another General Electric director, had founded that institution. There were two or three General Electric directors on the boards of each of the following Boston banks: Bay State Trust Company, City Trust Company, Security Safe Deposit Company, Provident Institute for Savings, and National Shawmut Bank.

[4] James H. Hyde of the Equitable company was on the Westinghouse directorate.

[5] Kuhn, Loeb & Co. underwrote the note issues of 1904 and 1907 and were trustees for a further issue in 1907. Besides, Jacob Schiff and Paul M. Warburg of this company served on the proxy committee and the directorate, respectively, of the Westinghouse company after its reorganization in 1907. Presumably those interests which had been lending financial support were given prominent positions in the affairs of the company after it had got into difficulties.

[6] Charles Francis Adams, of Boston, was a director of the company, and, with Charles Francis Adams II, had interests in the Adams Trust Company, the American Loan and Trust Company, the Old Boston National Bank, the City Trust Company, the Provident Institute for Savings, and the Security Safe Deposit Company, besides many real estate trusts. The Pittsburgh affiliations were too complicated to detail. They centered around A. W. Mellon, of the Union Savings Bank and of the Mellon National Bank, of that city.

the Pittsburgh and the New York group of banks on one hand and the Pittsburgh and Boston group on the other.[1]

This is not all. It is very probable, not only that the two corporations enjoyed the confidence of the investing world in general, and the advantage of intimate relationship with certain financial groups among the most powerful in the country, but that also these same sources of financial support were themselves acting with a great degree of harmony.[2] The General Electric Company then enjoyed no advantages over its competitor as far as its ability to get money was concerned.

In the other point at which competition appeared, namely, in the getting of business, the two were also very nearly on a par. Both firms possessed quasi-monopolistic powers, so far as the market in general was concerned, and maintained toward each other an attitude at least of partial harmony in several important respects. The first of these competitive advantages shared by the two, that is, the domination of the electrical industry, was a resultant of three factors: in point of size they far outstripped their nearest competitors;[3] their control of fundamental patents was almost complete

[1] Charles Francis Adams II, of Boston, was a director of the Equitable Trust Company, as was also H. C. Frick, of Pittsburgh, who in turn was associated with some of the same banks in which A. W. Mellon figured. Again, James H. Hyde, of the Equitable Life, was a director of two Pittsburgh banks along with Mr. Mellon, while Mr. Mellon and Jacob Schiff, of Kuhn, Loeb & Co., sat on the board of the National Bank of Commerce, of New York.

[2] Here again the evidence is too complex adequately to be presented. The statement is based upon three facts for which support seems clear: first, the Morgan group back of the General Electric Company and the Kuhn, Loeb–Equitable group back of the Westinghouse company, both ramified into the same set of New York banks and trust and insurance companies. Secondly, the Kuhn, Loeb–Equitable combination came together with the Morgan group on the directorates of the National Bank of Commerce, the Morton Trust Company, and the Equitable Trust Company. The Pujo report (p. 85) indicates a more open relationship between these two at a later date. Thirdly, the Morgan firm, besides being openly interested in the General Electric Company, was probably giving support to the Westinghouse company, or ready to do so, for in the reorganization of 1907 Mr. Lamont, of the Morgan house, became a director of the Westinghouse company. Collateral support to this conclusion appears also in the fact that General Electric and Westinghouse directors sat together on the boards of the Security Safe Deposit Company, the City Trust Company, and the Provident Institute for Savings, of Boston.

[3] Moody, *The Truth about Trusts*, p. 249, credited the two with control over 90 per cent of the market. The Thirteenth United States Census, X, 281–97, furnishes some interesting figures in this connection. Thus the seven states in which General

in several instances;[1] and by stock holdings and interlocking directorates they were closely associated with a large proportion of the public-utilities corporations of the country, to which it is natural that all electric supply companies would have to look for a major part of their domestic market.[2] And competition was limited between the concerns themselves in two important respects: Both patent pools[3] and price agreements obtained between them.[4]

In these three points, then: the nature of their business; the corporate organization both of the concerns themselves and of their

Electric and Westinghouse plants were located employed approximately 54,000 of the 64,000 men employed in the electrical supply industry, although the two largest competitors of these two—the Allis-Chalmers Company of Milwaukee and the Wagner Electric Company of St. Louis—were located in states other than these seven.

[1] William Hard, *Everybody's Magazine*, XXX, 17–30, 169–82, 641–53, makes several specific statements as to the leverage the General Electric and the Westinghouse companies have been able to exercise by means of their wealth and the existing condition of our patent regulations. The electrical supply business is one peculiarly subject to domination by patent control, because of the intricacy of design and highly specialized technical skill entering into electrical apparatus. The patent pools of 1896 covered many of the basic patents underlying power generation, conversion, transmission, and transportation. A lamp pool appears to have brought about a virtual patent monopoly in incandescent lamps. Moreover, the superior wealth of the two corporations and of their joint board of patent control undoubtedly gave them such great advantage in litigation as strongly to reinforce their extensive out-and-out patent control.

[2] This statement is based on a rather extensive examination of financial manuals and of directories of directors for the period concerned, also upon Moody's account of the "Greater Franchise Trust" in *The Truth about the Trusts*, and the *Report of the Commissioner of Corporations on Water Power Development in the United States*. This last is as of 1912, but the manuals and directories of earlier dates show that the relations indicated in that report existed, in a somewhat less highly developed form, in 1904. The influence which the finance subsidiaries of the two concerns maintained, through their virtually acting as underwriters for the securities of many public-service corporations, should also be kept in mind.

[3] *Commercial and Financial Chronicle*, LXII, 476, 502, 635, 1040. See Note 1, *supra*.

[4] The lamp pool did not become generally known until the government suit for its dissolution was undertaken in 1911. However, the National Lamp Company, which, with the General Electric and Westinghouse companies, was the chief defendant in the suit, was incorporated in 1901, and it seems proper to assume that the pool for which the National Lamp Company was the legal instrument existed as least as early as 1904. Moody's *Monthly Digest* for January and June, 1911, and the *Commercial and Financial Chronicle*, LXXXIII, 1025 and 1194, contain current comments on the case—all that were obtainable when the data for this paper was collected, the Federal trial reports not yet being issued.

subsidiaries; and their competitive position, in respect to each other as well as to the market in general; in all these considerations, constituting the underlying industrial and commercial conditions upon which the General Electric and Westinghouse companies had to base their financial operations, there seems clearly to have been a similarity, real and fundamental. And, more than this, in such primarily important elements as were related to the fiscal side of their affairs the two corporations showed further resemblance.

There are two points at which divergence between the two might have forced differences in financing of a radical nature: One corporation might have been overcapitalized, while the other was not; and one might have been operating on a much larger margin of operating profits than the other. But in neither respect did such differences exist. At no time in the history of either does there appear any evidence of stock-watering.[1] As for the operating profits of the two, there was—as might be expected of corporations carrying on the same sort of business in the same sort of way—a very slight variation, only 3.5 per cent for the fiscal year before that at which this study is begun.[2]

[1] At its inception, the General Electric Company issued its stock dollar for dollar for the Edison General Electric and Thomson-Houston preferred, which paid 8 and 7 per cent respectively; while it set the ratio of 125–100 for the Thomson-Houston common, which paid 16 per cent. Since that time it had issued $25,000 for cash; exchanged the greater part of a convertible bond issue, at the ratio of $100 in stocks for $125 in bonds; had reduced its capital by $16,000,000 during the hard times of 1892; and had made this reduction up by a stock dividend in 1903. The Westinghouse company had pretty effectually squeezed the water out of its stock in the first reorganization of 1892, when the great majority of its stockholders had relinquished 40 per cent of their holdings in order that the stock thus made available might be reissued for cash. There had also been a share-for-share exchange for the stock of the United States Electric Lighting and the Consolidated Electric Light companies, concerns already owned and operated by the corporation. Since that time it had issued stock for cash, $5,000,000 in 1896, $3,000,000 in 1901, at a premium of ten points, and $4,000,000 in 1906 at a premium of sixty points. Cf. Dewing, *Corporate Promotions and Reorganizations*, and *Commercial and Financial Chronicle* for the periods concerned.

[2] Annual Reports, 1903–4 show:

	General Electric	Westinghouse
Sales	$41,699,617	$23,385,789
Cost of sales (excluding depreciation)	32,890,585	19,249, 88
Percentage cost of sales to sales	78.8	83.3
Net earnings	$ 8,809,585	$ 4,136,499
Percentage net earnings to sales	21.2	17.7

In the conditions upon which the financial operations of the two corporations were predicated, therefore, little divergence existed. Variation in these operations must, accordingly, have resulted from diversities in the policies adopted by the two. That these diversities were clear and far-reaching becomes plain when the examination of the companies is continued. Those points in their fiscal condition which were dependent upon policy, rather than upon underlying circumstances, showed radical divergence.

These diversities in fiscal condition in 1904 were related to three points: first, to the proportion of assets to liabilities, particularly of quick assets to quick liabilities; second, to the proportion of share capital, or capital stock, to borrowed capital; and third, to the proportion of charges against income to income.

With respect to the first point, that is, the relation of assets to liabilities, it seems that the General Electric Company maintained a larger margin of safety than did its rival, and that this was especially true in the case of the surplus of quick assets over quick liabilities, ordinarily known as working capital. A sharp contrast appears in the next step of the comparison. The capitalization of the General Electric Company was very largely in the form of capital stock, or share capital, while that used by the Westinghouse company was much less so. Finally the total charges for interest and dividends of the General Electric Company were materially smaller than those of the other, whereas its charges for depreciation were very much larger.

1. The first statement can be established only after considerable analysis, for, on the face of the balance sheets, the General Electric Company appears at a disadvantage in the comparison:

	General Electric	Westinghouse
Total assets	$55,938,959	$48,432,188
Total liabilities	49,171,104	37,400,083
Excess of assets over liabilities	$ 6,767,855	$11,032,105
Percentage excess to total assets—approximate	12.1	22.7

That this showing does not indicate the actual state of affairs develops when the same process of valuation is applied to both concerns. There are two methods for making such a revised valuation. Neither admits of anything approaching precise accuracy, yet both

appear useful for all that is necessary in this connection. The first device is the estimating of assets from income. This shows the following relation between the two:[1]

	General Electric		Westinghouse
Total assets	$55,938,959		$32,494,633
Total liabilities	49,171,104		37,400,083
Excess	$ 6,767,855	*Deficit*	$ 4,905,450
Percentage excess assets to total assets (approximate)	12.1	*Deficit*	15.4

Of course it is not at all likely that the Westinghouse company was in the insolvent state that this table indicates. As a matter of fact, the General Electric assets were probably undervalued, so that a corresponding undervaluation of the Westinghouse assets brings about the discrepancy manifested. Nevertheless, the computation fully serves the purpose for which it is made, namely the furnishing of a means for putting the relation of the resources and obligations of the two companies upon the same basis; and it shows that when such a correction is made, the apparent position of the two is completely reversed, and that it is the General Electric Company, not the Westinghouse, which shows the greater margin.

This probable overconservatism in apparaisal on the part of the General Electric Company furnishes the clue for the second method of making the assets of the two corporations comparable. The resources side of their balance sheets can be taken item by item; the basis for estimating each can be compared; and some approximation of the relative value of each can be attained as a result. There is space here only for the conclusions deduced from such a comparison, and for certain significant elements in the facts behind these conclusions. Fixed assets will be considered first; quick and current, next.

Of the items included under fixed assets, that for plant and real estate seems manifestly to have been evaluated at a much higher

[1] Method of computation is as follows (General Electric Company taken as base): Westinghouse sales ($23,385,789), 56 per cent (approximately) of General Electric sales ($41,699,617). General Electric total assets $55,938,959; Westinghouse total assets 56 per cent of this or $32,494,653. Total liabilities of each as above, i.e., as per balance sheets. Assumed that, since companies were both operating under same conditions, and at practically same margin of manufacturing profits, income of one could be capitalized on same basis as income of the other.

rate by the Westinghouse company than by the General Electric Company.[1] This same is true with respect to securities held; there is a strong presumption that a number of entries on this second item were given an inflated appraisal by the Westinghouse company.[2] The patents, franchises, and good will of the General Electric Company appear to have been entered at a much lower figure than those of the other concern. This circumstance seems due to a positive undervaluation on the part of the larger corporation.[3] In this last item certainly there is support for the assumption that it was overconservatism on the part of the General Electric

[1] According to balance sheets: General Electric, $6,924,082; Westinghouse, $9,937,300, although total income of the latter was only 56 per cent of that of the former. It is obvious that the Westinghouse company could not reasonably have a plant worth 40 per cent more than its competitor and have an income amounting to 44 per cent less. The explanation lies in the fact that the Westinghouse company maintained depreciation charges about half as heavy as those of the General Electric Company (see General Electric report for 1903–4, appended statement of expert accountants; and report of Haskins & Sells to the receivers of the Westinghouse company, published 1907, but covering five years preceding).

[2] Securities held by General Electric Company were in five classes: stocks of affiliated companies, held at an average premium of eight points, against an apparent surplus of ten points shown by balance sheets of same; stocks in security holding companies, probably representing chiefly shares in the United States Electric Securities Company, paying 6 per cent regularly, and held at a slight premium; stocks of sundry foreign companies, held at half par value (the Canadian General Electric Company was paying 6 per cent on preferred and 8 per cent on common; the figures for others are not available); securities of local railway and lighting companies, probably slightly undervalued, since securities of this class, held at $116,812 in 1903, had, during the succeeding year, been sold for $138,644; and miscellaneous securities difficult of estimation, but relatively insignificant in amount. The securities held by the Westinghouse company were in two classes: stocks of subcompanies, probably placed at very safe figures, since their dividends amounted in 1905–6 to 14 per cent on their book value, and in 1906–7 to 18 per cent; and securities held as investments, presently to be discussed.

[3] Patents, franchises, and good will had been arbitrarily held down to $2,000,000 for two years, although large sums had undoubtedly been expended upon them, the deferred liability entry in the balance sheet itself indicating a balance "on account of purchase of Curtis Steam Turbines" amounting to $834,000. Arbitrary writing down of patent values appears to have been a regular policy of this company as appears in their reduction from $2,000,000 to one dollar during the period 1904–7. Westinghouse patents were held at "cost to the company of patents which have been purchased outright"—a practice appearing perfectly legitimate in view of the competitive prestige shown above to be derivable from the patents of the two companies.

Company in entering its assets that made the Westinghouse company appear at such a disadvantage when put on the same basis.

A corresponding situation develops in the quick and current assets. Merchandise inventories and work in progress seem to have been reckoned with equal conservatism by each concern.[1] On the other hand, though the cash on hand was probably stated accurately by each company, having been certified to, in each case, by reputable accountants, it seems likely that a large part of the Westinghouse company's cash on hand was not really at its own disposal.[2] In the case of notes and accounts receivable, the General Electric Company evidently had been consistent in its practice of keeping well within the limits of safety, while the Westinghouse corporation maintained an attitude, to say the least, extremely sanguine.[3] It is plain, from the foregoing, that the Westinghouse assets were appraised at a much higher rate than were those of the General Electric Company, and, conversely, that the Westinghouse assets would have to be reduced materially before they could be truly comparable to those of the General Electric Company. The exact amount of such a reduction cannot, of course, be determined, but it certainly would be sufficiently drastic to place the General Electric in a much more secure position than its rival in the matter of assets and liabilities. Especially sound does such an assumption appear when it is considered in connection with the first device for reducing the assets of the two to an equal basis. The two methods are complementary.

[1] Inventory methods of the General Electric Company are stated in the annual report as of January 31, 1904; and those of the Westinghouse company, in the report of Haskins & Sells to the receivers.

[2] In 1907, the report of Haskins & Sells to the receivers shows that $1,535,120 of the Westinghouse company's "cash" was a "special deposit in dispute" and was a part of a "credit contingent upon certain guaranties" which the bank concerned declined "to permit . . . . to be checked against in the usual manner."

[3] The General Electric Company's notes and accounts receivable realized in collection $372,293 more than the amount at which they had been held in 1904. The report of Haskins & Sells to the receivers showed that out of $14,041,488 worth of notes and accounts receivable of the Westinghouse company in 1907 only $8,767,396 were "available." The bulk of the rest consisted of loans to other Westinghouse enterprises, especially the European companies. It seems probable that a policy leading to such a condition in 1907 must have been in operation at least as early as 1904.

Of the computations concerned with the second method of appraisal there are three features which are worthy of more complete statement, for the sake of the light they throw upon the policies of the two concerns. The first is the radical and arbitrary depreciation of patent, franchise, and good will values practiced by the General Electric Company. This point will receive more detailed discussion in connection with the income accounts of the corporations, yet it is worth noting here, for here its influence begins to make itself felt.

The second feature is the very probable inflation in values of the securities held for investment by the Westinghouse company. These included, in the first place, large blocks of securities of various foreign Westinghouse enterprises. It is sufficient at this time to remark that in 1907 two of these foreign subcompanies reduced their capitalization very materially, virtually admitting overcapitalization and indicating their overvaluation when held at par by the parent company in 1904.[1] It may be observed further that the new management following the receivership eventually found it necessary still further to lower the valuation put on the securities of these foreign companies.[2] Indeed, these securities held as investments can be classed as investments only by a bookkeeper's fiction. They were speculations pure and simple—and unsuccessful speculations at that. They represent pretty definitely a fixed policy on the part of the Westinghouse management to utilize the corporation's funds for the fostering of enterprises, the uncertainty of which subsequent events proved, and the policy moreover of looking upon these enterprises with such an optimism as not at all to discount the possibilities of their success, but rather so confidently to assume their happy consummation that their securities were held at full face value. Here again it should be noted that the policy concerned had already infiltrated itself into the financial tissue of the corporation.

Practically identical with the practice followed in the Westinghouse classification of investments is that exhibited in respect to

[1] The British Westinghouse Electric and Manufacturing Company and the Société Anonyme: *Chicago Economist*, XXXVII, 226; *Commercial and Financial Chronicle*, LXXXV, 598.

[2] Annual report as of March 31, 1911.

notes and accounts receivable. The indications are that, to a large extent, these represented money due from other Westinghouse enterprises, largely the same foreign subsidiaries concerned in the investments already mentioned. The observations already made in relation to the investment policy apply here.

It has been said, however, that the General Electric Company maintained a larger margin of safety, not only in respect to assets and liabilities in general, but particularly in respect to the margin of quick and current assets over quick and current liabilities; that is, it maintained a larger proportion of working capital. The balance sheets of the two concerns show the following relations:

	General Electric	Westinghouse
Total quick and current assets	$32,349,531	$19,384,639
Total quick and current liabilities	3,173,004	9,378,033
Excess, i.e., working capital	$29,176,527	$10,006,606
Percentage of excess to total quick and current assets (approximate)	90.5	51.5

The difference is remarkable, especially when it is borne in mind that this proportion is based on the balance sheets themselves and not on either one of the corrected estimates. If either method of reappraisal were used, the difference would be even more marked. The comments already offered concerning the entries of cash and of the notes and accounts receivable in the statements of the two make it plain that some such correction should be attempted. Even as the figures stand, however, there is clear indication that the General Electric Company was very evidently conducting its business on a far wider proportion of working capital than was the Westinghouse.

2. A clear divergence in fiscal method appears in the second point of the financial difference between the two concerns. The greater proportion of the General Electric Company's funds represented proprietary capital, that is, capital stock; while the reverse was true in the case of its competitor. The figures are subjoined:

	General Electric	Westinghouse
Percentage of capital stock to total liability	87.8	60.7
Percentage of capital stock to total sales	105.2	96.2
Percentage of debt to total liabilities	13.1	40.3
Percentage of debt to total sales	12.7	68.9

The General Electric Company had evidently made it an object to obtain, in a far larger proportion than the Westinghouse company, its funds through the issue of capital stock rather than of bonds and notes. And it should be noted, further, that this proprietary capital formed no lien upon either the income or the resources of the corporation.

3. The final points of difference offered in the income accounts of the two were largely the resultants of factors already shown. That is to say, various features connected with the ratio of assets and liabilities and with the methods of raising capital reacted to make the incomes of the two show considerable variation, in respect to both source and expenditure. As to the source of the income there was only one notable difference, and that had to do with premiums from the sale of stock.[1]

	General Electric	Westinghouse
Additions to surplus from premium on sale of stock..	None	$1,407,364

The query naturally arises how the Westinghouse company could obtain such a heavy premium while its rival could not.

The dividend rate furnishes the best explanation. It was and had been high. From the period of 1904 to 1907 it was 10 per cent, and 10 per cent stock was a good "buy" at 160. The further query how this company could maintain such a high dividend while the General Electric Company was paying only 8 per cent may be met by reference to the much smaller proportion of share capital compared with funded capital, which has already been mentioned. With less stock to pay dividends upon, the Westinghouse company could maintain a higher dividend rate; indeed, its total dividend charges consumed a smaller portion of its revenue than those of its

[1] Estimated as follows: Report of Haskins & Sells to receivers shows $5,884,158 added to surplus from this source. Balance sheet, 1903–4, shows stock increase $4,463,900. This was made at a premium of 60 points on 100 which would bring a total premium of $2,678,340. Large deductions were made for commissions, fees, and taxes, and special depreciation of discount, items which probably all came out of this special surplus. The exact amount of reduction is determined by that necessary to make income account balance. Both Westinghouse income accounts and balance sheets are fragmentary and ambiguous for the entire period preceding the last reorganization. Hence, both here and elsewhere estimates have been necessary, and it is probable that they are far from complete accuracy. It is felt, however, that the conclusions based upon them are sufficiently broad to hold true, even if the figures were very materially to be altered.

rival, as is shown in the next table. The further bearing of this special and rather unusual element of income will be brought out in the succeeding paragraph.

As to the way in which their income was expended, the General Electric and the Westinghouse companies differed in two ways: First, the depreciation charges of the General Electric Company were very much heavier than those of its competitor; second, the disbursements for dividends and interest combined were smaller, though for dividends alone they were larger. A tabular statement may be of aid at this point. The figures shown are approximate percentages on gross sales.

	General Electric	Westinghouse
Gross sales	100.0 Per Cent	100.0 Per Cent
Depreciations and deductions	8.4 " "	2.0 " "
Dividends	8.6 " "	7.5 " "
Interest (estimated)	0.18 " "	3.1 " "
Interest and dividends	8.78 " "	10.6 " "

The significance of the sharp differences appearing here develops when they are considered in connection with the factors out of which they arose, for, as has been said, the previously noted points of divergence were reflected in these later ones. The difference in depreciation, of course, associates itself with the differences in the margin of assets over liabilities indicated above. The treatment of dividends and interest is complementary, in the first instance, to the difference in the proportion of borrowed and proprietary capital, and, in the second instance, to the difference in the proportion of working capital. With a relatively larger amount of its funds obtained through the issue of capital stock, the General Electric Company would naturally have to maintain a heavier dividend disbursement than the other firm. Did the difference end here the Westinghouse company might be expected to have the advantage in dividend and interest payments combined as well as in dividend payments alone, since, in place of capital stock, it could issue bonds requiring a lower rate of interest than the corresponding amount of stock. But the Westinghouse company's smaller proportion of working capital had to be reckoned with. Cash, and the means of quickly securing cash, any large industrial must have in plenty, for

it requires funds constantly to be expended on its manufacturing processes, to be kept there until the material involved shall have been worked up and sold. These funds may be obtained from a large block of cash and quick assets free of obligation; they may be obtained from short-time loans. But it must be noted that such short-time loans cannot be obtained at the same low rate of interest as the more permanent funded debt. They carry an interest rate which fluctuates widely and is almost always considerably above that demanded for industrial bonds. It must be noted, furthermore, that a concern maintaining only a small proportion of free quick assets has by virtue of that fact to keep up a large proportion of short-time loans. Such was the case with the Westinghouse company. It maintained a small proportion of working capital, relying upon commercial paper and short-time notes to provide it with funds for its immediate needs, and meeting its obligations out of the sale of the goods for the manufacture of which these obligations were originally incurred. And it had to maintain a relatively high rate of interest on a relatively large amount of debt in order to do this. The explanation of its larger total dividend and interest payments in comparison with the General Electric Company now becomes clear. The General Electric Company had its own funds of floating capital, free to be temporarily bound up in the production of goods, and had therefore to incur few obligations and to pay little interest for the purpose. The Westinghouse company had only enough free assets to do a part of this service, had to call on outside help, and had to pay well for such help. So heavy a drain was this charge that it served more than to offset the advantages the concern had over the General Electric Company in the matter of dividends, and left the Westinghouse company ultimately at a disadvantage.

With this final point of comparison, the industrial and financial status of the two concerns at the beginning of the period of study reaches a complete exposition. The points of similarity have been too thoroughly discussed to require repetition. The points of difference, however, may very well be reviewed in preparation for the next topic to be considered, namely, the differences in policy. For these differences are pretty directly attributable to the differences

in policy—are in fact very largely the evidences and embodiments of these differences. Indeed, practically all of the major points of variance out of which discrepancies in the financial operations of the two concerns were to grow have been suggested if not directly expressed in the account just completed.

The first set of differences may be disposed of quickly. First, the Westinghouse company maintained a smaller margin of assets over liabilities than did the General Electric Company, and showed especial inferiority in this regard in the matter of working capital. On the face of the statements of the two corporations the advantage appeared on the side of the Westinghouse and not the General Electric Company, but this apparent relationship was due largely to the less conservative figures at which the Westinghouse resources were held. Of particular significance in this connection were the policies displayed by the Westinghouse management in the appraisal of its securities held as investments, and of notes and accounts receivable. The former consisted largely, not of legitimate investments, but of the stocks and bonds of various foreign subsidiaries—stocks and bonds valued moreover at a figure much above that justified by their later history. The latter, that is, the receivables, represented largely amounts due from various Westinghouse enterprises, many of them those identical foreign subcompanies whose securities were classed as investments. That is to say, the Westinghouse company seemed definitely to have committed itself to the promotion and underwriting of various rather uncertain enterprises, and, more than this, to have entered upon its books, as bona fide, full-face-value assets, the notes, stocks, and bonds representing the money sunk in these projects. Again the Westinghouse company has been shown to have maintained a far less rigorous depreciation régime than its contemporaries, especially in the matter of patents and franchises, which, be it noted, were the most intangible among the assets of each.

In the second place, the Westinghouse company gained a far smaller proportion of its funds through the issue of stock than the other concern. Instead, bonds and notes were used.

Finally the two showed marked differences in their income accounts, largely because of these other factors. With a relatively

smaller stock issue, the Westinghouse company maintained a higher dividend rate; and, on the strength of its generous dividends, was able to command a very handsome premium on its new stock issues, so that its income was bolstered up by the premiums on the sale of new stock, an item to which nothing in the General Electric's revenues corresponded. On the side of expenditures, the Westinghouse statement showed very much smaller charges to depreciation than its competitor. Finally the Westinghouse company was able, through its holding down of stock issues, to get along with smaller dividend payments than the other, despite its higher dividend rate. Nevertheless, its failure to maintain an adequate reserve of floating capital entailed the presence of a large floating debt, maintained for the providing of funds for manufacturing purposes; and this body of quick and current liabilities carried with it an interest rate so high that it served more than to overcome the advantage in the matter of its permanent capital, and to make the company's total dividend and interest expenditures exceed those of the General Electric Company. In the presence of these facts, the final point of comparison, namely, the major differences in the policies of the two concerns, can be quickly comprehended.

First, the nature of the management itself was radically different. There is nothing particularly noteworthy about any one feature of the General Electric administration. This absence of distinctiveness, in fact, constitutes perhaps the most distinctive feature. The concern was simply a well-co-ordinated and highly efficient industrial organization. The board of directors, as has been implied, was largely representative of the financial interests behind the concern. The president, the late C. A. Coffin, resided in Boston, while the operating center appears to have been Schenectady. Thus Mr. Coffin apparently served as a connecting link between the financial interests and the operating force, while the active management was probably left very largely to the administrative heads in Schenectady. Indeed, the whole organization appears to have furnished an admirable illustration of the advantages obtainable from the corporate form.

An entirely different situation develops in the case of the Westinghouse company. It was very largely the product and the

domain of one man, the late George Westinghouse. It used to be a financial commonplace that "Westinghouse was a great inventor but no financier, and so he went broke." This seems to have been far from accurate. Mr. Westinghouse was a great inventor, but he was more. He was a consummate organizer, not only industrially but commercially. The first reorganization of 1891 bears ample witness to his financiering ability. He must have been a wonderful administrator, for he kept under his personal supervision over a score of enterprises, employing approximately three hundred thousand persons. In this earlier part of his career he marketed his own products[1] and built up his own companies in the face of indifference and opposition such as must have crushed any but a gifted salesman and a skilful promoter. The remarkable thing about the personality of Mr. Westinghouse is that it combined several personalities. Displaying extraordinary ability as an inventor, as an administrator, as a salesman, as a promoter, and, let it not be forgotten, as a financier, he established a group of industrial organizations which bear eloquent witness to his genius. And yet it was just in this kaleidoscopic combination of abilities that one of the chief sources of the Westinghouse concern's subsequent misfortunes seems to have existed. For it is inevitable that when one man attempts to carry on functions ordinarily undertaken by several different individuals confusion must result; and it is the confusion and clash of various economic functions in the mind and the actions of one man which appear to furnish the key for very many of the peculiar pieces of financiering the Westinghouse company carried on.[2]

The next point of difference provides one of the chief applications for this statement. It has to do with the industrial and financial affiliations of the two concerns. The General Electric

[1] *Chicago Daily News*, March 13, 1914, biographical sketch published at the time of Mr. Westinghouse's death.

[2] Cf. Professor Taussig's psychological consideration of the impracticality of the inventor in his *Inventors and Money Makers*, especially this statement: "The truth is . . . . that no one individual is likely to possess to a high degree different kinds of capacity. The mechanical genius is not likely also to be a shrewd judge, a capable organizer, and manager" (pp. 38–39). The point is not precisely the same as the one at issue here, but it is sufficiently similar to be of value in this connection. The book did not to come to hand until after the present article was in process of publication.

Company was just what its name implies. It had subsidiaries and allies of various types, but they all contributed directly to the one single function of manufacturing and marketing electrical supplies. The Westinghouse company, on the other hand, was only one of a number of Westinghouse enterprises.[1] They were all dominated by Mr. Westinghouse, and, as has been inferred, he probably failed clearly to differentiate between them. The affairs of one were considered in relation not merely to itself but to the others. Here lies the probable explanation of the appearance among the Westinghouse company's assets of funds advanced to the Westinghouse Machine Company and other Westinghouse enterprises.

The next point of difference seems also to have arisen largely out of Mr. Westinghouse's inability to keep clear the limits of the different functions which he undertook to perform. It has to do with the relation of the General Electric and the Westinghouse companies toward their foreign and domestic subsidiaries. In the first place, the General Electric subsidiaries were General Electric subsidiaries pure and simple; the Westinghouse subsidiaries, on the other hand, were very often not merely Westinghouse Electric subsidiaries, but the joint enterprises of two or three of the American Westinghouse companies. And, in the second place, the General Electric Company appears to have held the securities of these foreign companies at just what they were worth, if not at slightly less; while contrary to this, the Westinghouse company, as already shown, appears to have put its holdings in foreign concerns at a value far above that ultimately realizable from them. The Westinghouse company seems to have undertaken the rôle of promoter and underwriter for these companies; its reports indicate the hope later of selling its holdings in these companies at a profit; and meanwhile it seems to have been so certain of the successful fulfilment of these hopes that it carried the holdings at values largely anticipatory. Mr. Westinghouse was a promoter, hence to him the use of the funds of an industrial company for gaining a promoter's profits would not seem at all improper. He had the courageous optimism

[1] The Westinghouse Air Brake, the Westinghouse Machine, the Westinghouse, Church, Kerr, and the Union Switch and Signal companies were the best known of these.

of a salesman and an inventor; so that there probably was not the slightest idea of deception on his part when he wrote into his assets profits which he was never able to make. To a man capable of achievements such as he had attained, the happy outcome of these projects probably seemed so sure that he could conscientiously predicate his financial operations upon the assumption that it already was achieved. Had Mr. Westinghouse confined his energies to the technical side of his work and left the rest to specialists—as Mr. Edison seems to have done when his firm was integrated into the General Electric Company—it is probable that the Westinghouse company would not have undertaken many of the financial experiments which ultimately proved so disastrous.

In that they reflect a confidence and assurance much greater on the part of the Westinghouse than of the General Electric company, the remaining differences seem also deducible (though not so directly) from the temper and the mind of Mr. Westinghouse. These differences having already been pretty clearly outlined, and being, besides, closely interrelated, will be treated together.

The General Electric Company maintained an attitude of extremely cautious conservatism. Its severe depreciation policy, and particularly its arbitrary holding down of the intangible asset values represented by patents, franchises, and good will, arose from this apparent persistence in preparing for the worst. Of a piece with this was its policy in obtaining funds. It could very well have issued a small amount of capital stock and of bonds, paying a relatively low rate of interest on the bonds and thus enabling itself to give its stockholders a high dividend rate, but this it refused to do. At the price of a relatively low dividend rate, it kept itself clear from the obvious dangers of this other policy. For bonds represent legal obligations; stock represents proprietorship. In good times or bad, the interest on bonds will have to be kept up, and failure to keep it up will force the company into the bankruptcy court. Dividends to stock, on the other hand, will have to be paid just so long as the company chooses to pay them, and so may be reduced or discontinued in the case of any difficulties. Conversely, the relatively small amount of bonds can be cared for by emergency measures which could not be thought of if the bonds

made up a major part of the concern's capitalization. Again the General Electric Company chose to be on the safe side in the matter of its working capital. The maintenance of a large fund of cash and quickly convertible securities undoubtedly forced the company to suffer a considerable opportunity-cost in the foregoing of more profitable investments. But it also enabled the corporation to meet from its own resources most of the ordinary needs for its industrial processes. This plan, let it particularly be noted, also left free for the company a large reserve of borrowing power at that point where it would be the most useful in times of stress, namely, the obtaining of short-time loans.

Turning now to the Westinghouse company, one perceives the absence of correspondence in practically every one of these points. The General Electric Company had systematically constructed second and third lines of defense to provide for any contingencies; the Westinghouse company had planned its entire campaign, it seems, upon the assumption that it would continue always to advance. The assets in general may not have been overvalued; certainly they were valued at a far higher rate than the more circumspect General Electric Company thought safe. And, in certain points already mentioned, they were without doubt unduly written up. The depreciation charges may have been reasonably safe for ordinary purposes; certainly they fell far short of those considered necessary by the General Electric Company to maintain solvency in the face of any difficulty. Yet it is in connection with the methods of raising funds that the temper of the Westinghouse policy is best shown. The company seems deliberately to have chosen to run all the risks involved in the obtaining of a large part of its capital by funded debt rather than by stock issue. A high dividend rate was the result, and a substantial increase of its income by the obtaining of premiums on the sale of this high dividend-paying stock followed. A vicious circle appears here. If the company were to continue receiving these premiums, it would have to continue paying the high dividends; that is, to enrich itself at one point, it would have to impoverish itself at another. Finally, in order to keep its funds open for the most favorable sources of investment—and especially for the semi-speculative enterprises already outlined—it chose to meet its immediate needs

out of a large floating debt, thereby burdening itself with a high interest charge. Here again a vicious circle develops. In order to use its cash for the sake of large gains—prospective and actual—the firm subjected itself to a severe drain so as to have the cash necessary for use in manufacture. Nor is this all. On the one hand, expansion in business would increase the need for funds, and these the company was in the habit of borrowing in this manner. Contraction of business, on the other hand, would probably accompany general depression, so that it would be increasingly difficult and expensive to obtain further help in this direction, and also increasingly difficult to maintain the expenses for the obtaining of these funds out of operating profits. Given prosperity, in short, the Westinghouse company would find its practice of borrowing working capital increasingly burdensome. Given depression, this same matter of working capital would create difficulty. And given prosperity followed by sudden depression—which is the situation that actually developed—disaster could be avoided only by great good fortune. Finally it should be kept in mind that, whereas the General Electric Company had almost its entire short-time borrowing power free for any eventualities, the Westinghouse company had this source of aid already pressed into service. In time of emergency it would have to resort to unusual and costly methods of temporary financing, and this is precisely what it did.

The condition of the two concerns, both in regard to similarities and differences, has been discussed. The differences have been shown to have been largely a matter of policy, first, because the similarities covered practically all the fundamental points of organization and general status, and secondly, because the differences relate themselves directly to the divergencies of policy just shown. Some notion of the relative safety of the two types of policy has been given and some hint of the outcome that each might encounter in the face of untoward circumstances. Such circumstances the panic of 1907 offered, and it now remains to carry the Westinghouse Electric and Manufacturing Company and the General Electric Company up to and through the panic, and to see just how they reacted to it.

NILES CARPENTER, JR.

NORTHWESTERN UNIVERSITY